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I. The Method, Manner and Order of the Transmutation of Copper into Brasse, &c. By Thomas Povey, Esq; brought into the Royal Society, of which he is a Fellow.

WE have in the North parts of *England* much *Copper*, which places, though as they now lie, are barren and poor, might be rendred rich and useful, if a sufficient Encouragement were given to the Digging and Raifing thereof, and the Poor thereabout might be put in a good way of Livelyhood, as well as several other Advantages to be brought thereby to the Publick.

The *Calamine* is digged out of certain Mines, of which there are several in the *West* of *England*, (as See Names. 198. of these Tracts. about *Mendip*, &c.) which lie about 20 Foot deep, as *Coals* do, thence brought up by Sea. It is burnt or calcin'd in a Kiln or Oven made red hot, then ground to Powder, and sifted into the fineness of Flower, and mixt with ground Charcoal, because the *Calamine* is apt to be clammy, to clod, and not so apt or capable of incorporating : Then they put about 7 l. of *Calamine* into a Melting Pot of about a Gallon Content, and about 5 l. of the *Copper* uppermost, the *Calamine* must be mixt with as many Coles as will fill the Pot. This is let down with Tongs into a Wind-Furnace 8 foot deep, and remains 11 hours therein. They cast off not above twice in Twenty Four Hours, one Furnace holds Eight Pots. After melting it is cast into Plates or Lumps. Forty Five Pound of raw *Calamine* produces Thirty Pound burnt or calcin'd.

Brass Shruff serves instead of so much *Copper*; but this cannot always be procured in quantities, because it is a Collection of pieces of Old *Brass*, which is usually to be got but in small Parcels.

The best *Guns* are not made of malleable *Metal*, and cannot be made of pure *Copper* or *Brass*; but it is necessary to put in courser Metals to make it run closer and sounder, as *Lead* and *Pot-metal*. *Bell-metal* being *Copper* and *Tin*, *Pot-metal* *Copper* and *Lead*. About 20 *l.* of *Lead* is usually put into 100 *l.* of *Pot-metal*; but about 6 *l.* is sufficient to put into 100 *l.* of *Gun-metal*.

The *Calamine* Stones were heretofore fetch'd from *Poland*, but since fetcht from hence by the *Dutch*.

The Manufacture of *Brass* was privately kept in *Germany* for many hundred years, wherein thousands were employed and well maintained, some having thereby raised themselves to great Estates.

The *Dutch* may not import (an Act of Parliament expressly forbidding them) the *Copper* nor the *Calamine* Stone; but contrary to the Ends, and perhaps the meaning of the said Act, and more to the Publick Disadvantage, they mingle and manufacture those two Ingredients (which are of Foreign Growth to them) and by that Evasion import them hither: And the great Manufactures of Wire, and several other Commodities arising of those important Materials.